TIERRA SOLUTIONS, INC.SM

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July 20, 2016

United States Environmental Protection Agency
Region II
Emergency and Remedial Response Division
Diamond Alkali Superfund Site
290 Broadway, 19th Floor, Room W-20
New York, NY 10007-1866
Attention: Ms. Elizabeth Butler, Remedial Project Manager

Re: Monthly Progress Report No. 319
Diamond Alkali Superfund Site
Newark, New Jersey
Work Period: June 2016

Dear Ms. Butler:

On behalf of Occidental Chemical Corporation, submitted herewith is one (1) copy of Monthly Progress Report No. 319 for work performed during June 2016 at the Diamond Alkali Superfund Site in Newark, New Jersey. This progress report has been prepared pursuant with Section XIV.A of the Consent Decree between United States of America, The State of New Jersey, and Occidental Chemical Corporation, Civil Action No. 89-5064 (JWB) (United States District Court for the District of New Jersey).

Please call me at 732/579-7586 if you have any questions regarding this matter.

Sincerely,

Brian Mikucki
On behalf of Occidental Chemical Corporation
(as successor to Diamond Shamrock Chemicals Company)

Enclosures

Two Tower Center Blvd. 10th Floor
East Brunswick, NJ 08816

1c: Chief, New Jersey Superfund Branch

Office of Regional Counsel
United States Environmental Protection Agency
Region II
290 Broadway, 17th Floor
New York, NY 10007-1866
Attention: Diamond Alkali Site Attorney

3c: New Jersey Department of Environmental Protecti on
Bureau of Case Management, Site Remediation Progra m
Mail Code 401-05F
P.O. Box 420
Trenton, NJ 08625-0420
Attention: Mr. Jay Nickerson

MONTHLY PROGRESS REPORT NO. 319
DIAMOND ALKALI SUPERFUND SITE
NEWARK, NEW JERSEY
WORK PERIOD: June 2016

(1) Work Performed:

(a) Tierra Solutions, Inc. (Tierra) performed operation and maintenance (O&M) activities at the Diamond Alkali Superfund Site (the Site) in acc ordance with the United States Environmental Protection Agency- (USEPA) approved *Operation and Maintenance Plan* (O&M Plan, Attachment G of the *Final Modified (100%) Remedial Design Report*).

(b) Inspection and monitoring activities, as required b y Sections 10 through 12 in the O&M Plan, were conducted at the Site on June 7, 2016. A checklist of the inspection and monitoring activities performed at the Site during May 2016 is included in Appendix A to this report.

(c) Tierra submitted the May 2016 Monthly Report and Di scharge Monitoring Report to the USEPA on June 20, 2016.

(d) Continued to operate the Groundwater Withdrawal Sys tem (GWWS) and Groundwater Treatment System (GWTS).

(e) Effluent and process samples were collected as requ ired. The GWTS began direct discharge to the Passaic River during the month of April 2014.

(f) USEPA completed the 2016 5-year review of the DASS which provided an update of the remedial performance.

(2) Potential and/or Actual Noncompliances or Problems Encountered:

(a) Extraction Well EW-9 is functional but out of servi ce. The EW-9 well flow restricts flow from the riverside extraction wells in the common header system.

(3) Corrective Actions:

(a) Corrective measures will be evaluated for EW-9 to mitigate flow restrictions on other extraction wells, but will remain off-line in the interim in order to facilitate flow from the riverside extraction wells.

(4) Final Results of Sampling or Testing:

(a) Methane gas monitoring results for June 2016 are reported in Appendix B.

(b) Groundwater level measurements for June 2016 are reported in Appendix B.

(c) Validated effluent analytical results for June 2016 are reported in Appendix B.

(5) Future Work Scheduled:

(a) Continue to operate and monitor the GWWS, GWTS, and sand layer drainage collection system.

(b) Inspection and monitoring activities will be perfor med at the Site in accordance with Sections 10 through 12 in the O&M Plan.

(c) Effluent and process samples will continue to be collected, as required.

(d) Treated effluent from the GWTS will continue to be discharged to the Passaic River.

(6) Work Completion Estimates, Delays, and Mitigati on Actions:

(a) Work Completion Estimates:

i. Mobilization / Site preparation – 100% complete

ii. Slurry wall construction – 100% complete

iii. Floodwall construction – 100% complete

iv. Demolition of Structures – 100% complete

v. Handling of shipping containers – 100% complete

vi. Stabilization of drum and tank contents – 100% complete

vii. Underground conduit sealing – 100% complete

viii. Placement of secured materials construction – 100% complete

ix. Groundwater withdrawal system – 100% complete

x. Groundwater treatment system – 100% complete

xi. Surficial Cap – 100% complete

xii. Attainment of Hydraulic Gradient – 100% complete

xiii. Demobilization – 100% complete

xiv. Final Report for Remedial Construction – 100% complete

xv. USEPA Approval of Final Report for Remedial Construction – 100% complete

xvi. Preparation of REWP – 100% complete

xvii. USEPA Approval of QAPP for the Groundwater Quality Monitoring Program – 100% complete

xviii. USEPA Approval of REWP – 100% complete

xix. USEPA Approval of Revisions to SAMP and QAPP Associ ated with the Operations and Maintenance Plan – 100% complete

xx. Preparation of RER – 100% complete

xxi. USEPA Approval of RER – 0% complete

(b) Delays and Mitigation Actions – None.

Appendix A

Monthly Inspection Checklist
Diamond Alkali Superfund Site
Newark, New Jersey

Date: 6/7/2016 Representative: Ryan Adair

	Description	Yes	No	Actions	Comments
1	Floodwall, curbwall, and fencing along curbwall intact?	X		No maintenance required	None
2	Perimeter and interior drains open and functional?	X		No maintenance required	None
3	Gabions intact?	X		No maintenance required	None
4	Perimeter fence intact?	X		No maintenance required	None
5	Entry gates intact?	X		No maintenance required	None
6	Paved and gravel roadways intact?	X		No maintenance required	None
7	Piezometers and gas vents intact?	X		No maintenance required	None
8	Surficial cap surface intact and no signs of significant ponding?	X		No maintenance required	None
9	Extraction well chambers and interior piping intact?	X		No maintenance required	None
10	Secondary containment intact for Tank T-1?	X		No maintenance required	None
11	Tanks T-1 and T-8 and associated aboveground piping intact?	X		No maintenance required	None
12	Stormwater management controls operating properly?	X		No maintenance required	None
13	Sand Layer Drainage Collection System- Trench drains & Weirs	X		No maintenance required	None
14	Sand Layer Drainage Collection System- Aboveground piping (floodwall & to GWTP)	X		No maintenance required	None
15	Bubbler system operating properly for effluent tank?	NA		No maintenance required	Frac tanks are no longer in use for storage of treated effluent
16	Effluent tanks locked appropriately?	X		No maintenance required	None
17	Exterior of groundwater treatment system building intact?	X		No maintenance required	None
18	Interior of groundwater treatment system building intact?	X		No maintenance required	None
19	Secondary containment inside the groundwater treatment system building intact?	X		No maintenance required	None
20	Floor sealant inside the groundwater treatment system building intact?	X		No maintenance required	None
21	Sump pumps inside the groundwater treatment system building operating properly?	X		No maintenance required	None
22	Containers stored in the residual storage area intact?	X		No maintenance required	None
23	Groundwater measurements taken for piezometers and extraction wells?	X		No maintenance required	Collected on 06/07/16
24	Groundwater measurements taken from vibrating wire piezometers?	NA		No maintenance required	No Longer Collect vibrating Wire data
25	Gas vents monitored for the presence of methane gas (inspect monthly)?	X		No maintenance required	Collected on 06/07/16
26	Automated security system functioning properly (inspect monthly)?	X		No maintenance required	None
27	Floodwall visually observed with no observations of cracking, deterioration nor damage?	X		No maintenance required	As observed from the site

Monthly Inspection of Interior Rooms Inside the Groundwater Treatment Building
Diamond Alkali Superfund Site
Newark, New Jersey

1. ***Residual Storage Area***
   No issues observed, no maintenance required.
   Odor Check: Normal Conditions

2 **Laboratory**
   No issues observed, no maintenance required.
   Odor Check: Normal Conditions

3. ***Sludge Room***
   No issues observed, no maintenance required.
   Odor Check: Normal Conditions

4. ***Bathroom***
   No issues observed, no maintenance required.
   Odor Check: Normal Conditions

5. ***Locker Room***
   No issues observed, no maintenance required.
   Odor Check: Normal Conditions

6. ***Decontamination Area***
   No issues observed, no maintenance required.
   Odor Check: Normal Conditions

7. ***Control Room/Office/Hallway***
   No issues observed, no maintenance required.
   Odor Check: Normal Conditions

8. ***Process Area***
   No issues observed, no maintenance required.
   Odor Check: Normal Conditions

No issues observed, no maintenance required.

Date: 6/7/16 Personnel: Ryan Adair

Appendix B

Methane Gas Monitoring Summary
Diamond Alkali Superfund Site
Newark, New Jersey

June 2016

Gas Vent	Location	CGI Reading				FID Reading (ppm)			PID Reading (ppm)
		CO	H2S	LEL	OXY	Initial	1min	2 min	Initial
GV-1	NW corner- along adjacent property 0.0		0.0	0.0	20.9	0.0	NM	NM	0.0
GV-2	NW corner- along Passaic River	0.0	0.0	0.0	20.9	0.0	0.0	0.0	0.0
GV-3	Along Passaic River- center of lot	0.0	0.0	0.0	20.9	0.0	0.0	0.0	0.0
GV-4	NE corner	0.0	0.0	0.0	20.9	0.0	NM	NM	0.0
GV-5	W property line- center	0.0	0.0	0.0	20.9	0.0	NM	NM	0.0
GV-6	Top of cap- NW end	0.0	0.0	0.0	20.9	48.0	18.9	0.0	0.0
GV-7	Top of cap- center	0.0	0.0	0.0	20.9	136.0	89.6	5.6	0.0
GV-8	Top of cap- E end	0.0	0.0	0.0	20.9	34.3	19.3	10.0	0.0
GV-9	Corner of GWTP and T-8	0.0	0.0	0.0	20.9	0.0	NM	NM	0.0
GV-10	Behind T-8	0.0	0.0	0.0	20.9	0.0	NM	NM	0.0
GV-11	Between T-8 and T-1	0.0	0.0	0.0	20.9	0.0	NM	NM	0.0
GV-12	SW property line- W corner	0.0	0.0	0.0	20.9	0.0	NM	NM	0.0
GV-13	SW property line- center	0.0	0.0	0.0	20.9	0.0	NM	NM	0.0
GV-14	SE corner of GWTP	0.0	0.0	0.0	20.9	0.0	NM	NM	0.0

Notes:

1. Combustible Gas Indicator (CGI) and Photoionization Detector (PID) was a MultiRae Plus from US Environmental
2. Flame Ionization Detector (FID) was a Photovac MicroFID from US Environmental
3. FID readings were not required at 1 minute and 2 minutes after if the presence of gas was not detected initially.
4. Methane gas monitoring performed on Jun 07, 2016.

Diamond Alkali Superfund Site
Newark, New Jersey

Summary of Groundwater Levels in Piezometers
Jun-16

Well ID		GCP 1-1	GCP 2-1	GCP 3-1	GCP 4-1	GCP 5-1	GCP 6-1	GCP 7-1	GCP 8-1	GCP 9-1
8/31/2009 TOIC Elevation*		14.14	15.72	13.86	12.90	12.86	14.17	13.84	13.76	15.07
Depth to Water (ft btoc)		12.07	14.01	11.22	9.83	9.76	10.78	10.68	10.60	12.40
Total Depth		23.95	27.57	24.47	13.75	12.71	15.18	13.93	14.61	16.06
Monitoring Date	Monitoring Time	Groundwater Elevations								
6/7/2016	11:33 - 12:27	2.07	1.71	2.64	3.07	3.10	3.39	3.16	3.16	2.67

Well ID		GCP 1-2	GCP 3-2	GCP 4-2	GCP 5-2	GCP 6-2	GCP 7-2	GCP 8-2	GCP 9-2
8/31/2009 TOIC Elevation*		14.06	13.78	12.38	12.91	13.37	13.55	12.62	11.98
Depth to Water (ft btoc)		11.63	11.49	8.29	7.23	11.25	9.82	8.86	7.38
Total Depth		43.64	43.65	13.71	12.63	43.55	14.37	13.00	13.11
Monitoring Date	Monitoring Time	Groundwater Elevations							
6/7/2016	11:33 - 12:27	2.43	2.29	4.09	5.68	2.12	3.73	3.76	4.60

Well ID		GCP 6-3	GCP 8-3	IP-1	IP-2	IP-3	IP-4	IP-5	IP-6
8/31/2009 TOIC Elevation*		13.24	12.96					23.17	22.65
Depth to Water (ft btoc)		8.73	10.68	0.00	0.00	0.00	0.00	20.27	19.82
Total Depth		14.17	40.75	na	na	na	na	24.00	23.99
Monitoring Date	Monitoring Time	Groundwater Elevations							
6/7/2016	11:33 - 12:27	4.51	2.28	0.00	0.00	0.00	0.00	2.90	2.83

Notes:
* - TOIC is refrenced to final PVC riser pipe elevations surveyed on August 31, 2009 by DPK Consulting
Elevations refer to groundwater levels in monitoring wells and piezometer based on NGVD 29 in feet above mean sea level (ft-amsl).
The depths of GCP 6-2 and GCP 6-3 differ from the design drawings. GCP 6-2 is screened in the glaciofluvial sand and GCP 6-3 is screened in fill material.
"-" means no reading.
"na" - not applicable. These four points are Vibrating Wire Piezometers and are sealed in place beneath the cap layers.
"btoc" - Below Top of Casing

JUNE 2016 SUPPLEMENTAL TABLE FOR MONTHLY DISCHARGE MONITORING REPORT
DIAMOND ALKALI SUPERFUND SITE
NEWARK, NEW JERSEY

Constituent	Permit Limitation		Sample ID:	W-TSI-EFF-060116	W-TSI-EFF-DUP-060116	TB-060116-694R
			Sample Date:	6/1/2016	6/1/2016	6/10/2016
	Monthly Avg.	Daily Max	SDG Number: Units	LISTER694R	LISTER694R	LISTER694R
Total Suspended Solids(TSS)	30	50	mg/l	10 U	10 U	–
Total Organic Carbon (TOC)	--	40	mg/l	1.0 U	1.0 U	–
Petroleum Hydrocarbons	10	15	mg/l	5.0 UJL	5.0 UJL	–
pH	--	6 - 9	SU	8.30 R	8.30 R	–
2,4,6-Trichlorophenol	115	260	µg/l	5.0 U	5.0 U	–
2-Chlorophenol	35	125	µg/l	5.0 U	5.0 U	–
2,4-Dichlorophenol	23	150	µg/l	5.0 U	5.0 U	–
Phenol	23	40	µg/l	23 U	23 U	–
1,2,4-Trichlorobenzene	45	90	µg/l	5.0 U	5.0 U	5.0 U
Hexachlorobenzene	22	40	µg/l	22 U	22 U	–
1,2-Dichlorobenzene	40	110	µg/l	5.0 U	5.0 U	5.0 U
1,3-Dichlorobenzene	25	35	µg/l	5.0 U	5.0 U	5.0 U
1,4-Dichlorobenzene	18	45	µg/l	5.0 U	5.0 U	5.0 U
Fluoranthene	--	16	µg/l	10 U	10 U	–
Naphthalene	35	105	µg/l	5.0 U	5.0 U	–
Phenanthrene	35	105	µg/l	5.0 U	5.0 U	–
Benzene	21	57	µg/l	5.0 U	5.0 U	5.0 U
Chlorobenzene	23	45	µg/l	5.0 U	5.0 U	5.0 U
1,2-Dichloroethane	30	85	µg/l	5.0 U	5.0 U	5.0 U
1,1,1-Trichloroethane	25	65	µg/l	5.0 U	5.0 U	5.0 U
1,1-Dichloroethane	25	65	µg/l	5.0 U	5.0 U	5.0 U
Chloroform	20	40	µg/l	5.0 U	5.0 U	5.0 U
1,2-Dichloroethene (Total)	25	65	µg/l	5.0 U	5.0 U	–
trans-1,2-Dichloroethene	25	65	µg/l	5.0 U	5.0 U	5.0 U
Ethylbenzene	--	430	µg/l	5.0 U	5.0 U	5.0 U
Toluene	18	35	µg/l	5.0 U	5.0 U	5.0 U
Trichloroethene	25	65	µg/l	5.0 U	5.0 U	5.0 U
Vinyl Chloride	25	65	µg/l	5.0 U	5.0 U	5.0 U
4,4-DDT	--	0.34	µg/l	0.34 UJL	0.34 UJL	–
4,4-DDE	--	14	µg/l	0.35 UJL	0.35 UJL	–
Endosulfan I	32	90	µg/l	0.05 UJL	0.05 UJL	–
2,4-D	1,500	3,300	µg/l	11 U	11 UJL	–
2,4-DB	17	25	µg/l	16 U	16 UJL	–
Dinoseb (DNBP)	420	790	µg/l	1.6 U	1.6 UJL	–
Dioxin (2,3,7,8-TCDD)	--	0.000081	µg/l	0.000081 U	0.000081 U	–
Total Recoverable Antimony	200	305	µg/l	60 U	60 U	–
Total Recoverable Arsenic	50	115	µg/l	10 U	10 U	–
Total Recoverable Beryllium	--	8.6	µg/l	8.6 U	8.6 U	–
Total Recoverable Cadmium	--	31	µg/l	31 U	31 U	–
Hexavalent Chromium	--	66	µg/l	66 U	66 U	–
Trivalent Chromium	--	44	µg/l	44 U	44 U	–
Total Recoverable Copper	--	62	µg/l	62 U	62 U	–
Total Recoverable Lead	--	18	µg/l	18 U	18 U	–
Total Recoverable Mercury	--	3.4	µg/l	3.4 U	3.4 U	–
Total Recoverable Nickel	--	73	µg/l	73 U	73 U	–
Total Recoverable Silver	--	69	µg/l	69 U	69 U	–
Total Recoverable Zinc	--	47	µg/l	47 U	47 U	–
Total Cyanide	--	78	µg/l	78 U	78 U	–

Notes:
mg/l - Milligrams/liter
µg/l - Micrograms/liter
SU - Standard units
-- - Not analyzed or not applicable
U - Constituent was not detected above the associated detection limit
UJL - The material was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity. Low bias is indicated.
R - Result is rejected.
Trivalent Chromium Concentration is calculated based on the total and hexavalent chromium results.

Appendix C

SUMMARY FOR THE SUBMISSION TO THE COURT
MONTHLY PROGRESS REPORT NO. 319
DIAMOND ALKALI SUPERFUND SITE
NEWARK, NEW JERSEY
WORK PERIOD: JUNE 2016

(1) Work Performed:

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(e) Effluent and process samples were collected as requ ired. The GWTS began direct discharge to the Passaic River during the month of April 2014.

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vii. Underground conduit sealing – 100% complete

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xi. Surficial Cap – 100% complete

xii. Attainment of Hydraulic Gradient – 100% complete

xiii. Demobilization – 100% complete

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xix. USEPA Approval of Revisions to SAMP and QAPP Associ ated with the Operations and Maintenance Plan – 100% complete

xx. Preparation of RER – 100% complete

xxi. USEPA Approval of RER – 0% complete

(b) Delays and Mitigation Actions – None.